

# PDR RID Report

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<b>RID ID</b> PDR 187
<b>Review</b> CSMS
<b>Originator Ref</b>
<b>Priority</b> 1

**Section**

**Page**

**Figure Table**

**Category Name** Design-Segment-level

**Actionee** HAIS

**Sub Category** Sizing Models

**Subject** Concern about relation of design to server sizing model

## **Description of Problem or Suggestion:**

We need to verify the sizing model is consistent with the operations concept for IR-1 and Release A. We should understand the type of applications, faults, performance and accounting data that are represented in the sizing model. In particular, one event log and management agent per host for all management data may result in limiting the usefulness of application events for fault, performance, and accounting operations.

## **Originator's Recommendation**

Prior to CDR:

- 1) identify the type of applications, faults, performance & accounting data represented in the model
- 2) illustrate design performance for major & critical flows using scenarios, OMT state diagrams and event traces
- 3) use sensitivity study to identify breakage points in design
- 4) identify operational constraints and limitations of design

## **GSFC Response by:**

## **GSFC Response Date**

**HAIS Response by:** Forman

**HAIS Schedule** 2/17/95

**HAIS R. E.** Forman

**HAIS Response Date** 2/28/95

The RID raises a concern about the relation of the design to the server sizing model, particularly its consistency with IR-1 and R-A operations concepts. The RID recommendations for performance prior to CDR are to:

1. Identify the type of applications, faults, performance and accounting data represented in the model
2. Illustrate design performance for major and critical flows using scenarios, OMT state diagrams, and event traces
3. Use sensitivity study to identify breakage points in design
4. Identify operational constraints and limitation of design

It is essential to note that at the PDR level of design, the models for server sizing were based on static and analytic analysis models. The goals of the PDR models were to examine breakpoints and project the server sizing out to the Release B timeframe to understand the scaling needs of the transition from R-A to R-B for prudent COTS purchase decisions of the IR-1/R-A hardware. The RID recommendations call for the production of an enhanced model, with high linkage and dependency on SDPS and FOS sizing models, database modeling work, and the project OMT methodology.

Specific explanation of the HAIS response for each of the four recommendations are addressed below.

1. Concur. The model currently uses generic 'events', tied to the amount of data production, data storage, and user sessions at each DAAC site. The scalars used for these events are imbedded within the static models. We recognize the need to better map the size and frequency variations of specific event classes (fault, performance, etc.) associated with all ECS subsystems. Accurate modeling of this is dependent on further design of all ECS subsystems, classification of ECS event libraries, and subsystem modeling of the rates of production/storage/user access that generate management events.

2. Concur with modification. The static models variables can be adjusted to match the models with various scenarios for analysis purposes. CSMS would like to explore linking major and critical flows of scenarios, OMT state diagrams and event traces as needed with either dynamic models through the modeling team, or laboratory bench marks. We believe these techniques offer substantially greater accuracy for design validation.

3. Concur. The PDR documentation discusses sensitivity analysis performed with the static models for the validation of the server sizing models. The drivers that most dramatically affect the server sizings were highlighted. As the model matures, sensitivity of the models variables and the affect of these variables on design breakpoints will be continuously examined and recorded appropriately in the CDR documentation. Refinements of the models anticipated in the CDR timeframe include laboratory benchmarks maps within the model's computational formulas, and model variable adjustments to reflect the expectations of IR-1 and R-A operational scenarios.

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server sizing models. The drivers that most dramatically affect the server sizings were highlighted. As the model matures, sensitivity of the models variables and the affect of these variables on design breakpoints will be continously examined and recorded appropriately in the CDR documentation. Refinements of the models anticipated in the CDR timeframe include laboratory benchmarks maps within the model's computational formulas, and model variable adjustments to reflect the expectations of IR-1 and R-A operational scenarios.

4. Concur. Operational constraints and limitations of design are seen as specializations of design breakpoints and will be examined as described in 3) above.

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**Status   Closed**

**Date Closed   3/8/95**

**Sponsor   Broder**

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**Attachment   if   any**

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